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Frank et al.

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(54) **AEROGEL-COATED SHEET**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

5,306,555 * 4/1994 Ramamurthi et al. 428/289
5,631,097 * 5/1997 Andersen et al. 428/703
5,789,075 * 8/1998 Frank et al. 428/312.6
5,830,548 * 11/1998 Andersen et al. 428/36.4

FOREIGN PATENT DOCUMENTS

1023881 2/1958 (DE) .
4106727 A1 9/1992 (DE) .
0667370 A2 8/1995 (EP) .

OTHER PUBLICATIONS

Patent Abstracts of Japan. vol. 17, No. 490, Sep. 6, 1993.
Derwent Publication, Week 9637, AN-96-367002. Jun. 9,
1996.

* cited by examiner

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(57) **ABSTRACT**

The invention concerns a coated sheet which includes an
aerogel layer, a method of manufacturing the coated sheet
and its use.

21 Claims, No Drawings